IN THE CLAIMS:

The status and content of each claim follows.

1. (withdrawn) A method of applying dopant to a substrate, comprising:

selecting at least one desired property of said substrate which should vary across said substrate; and

variably applying at least one dopant solution to said substrate to provide said desired property which varies across said substrate.

2. (withdrawn) The method of claim 1, wherein said selecting at least one desired property comprises creating a properties profile defining multiple desired properties of said substrate with respect to different portions of said substrate.

3. (withdrawn) The method of claim 2, further comprising variably applying multiple species of dopant to said substrate in accordance with said properties profile.

4. (withdrawn) The method of claim 1, wherein said substrate comprises a ceramic.

5. (withdrawn) The method of claim 1, wherein said substrate comprises a material suitable for fabrication of fuel cell membranes.

6. (withdrawn) The method of claim 1, wherein a concentration of said dopant on said substrate is made to vary with respect to a width of said substrate.

7. (withdrawn) The method of claim 1, wherein a concentration of said dopant on said substrate is made to vary with respect to a length of said substrate.

8. (withdrawn) The method of claim 1, wherein said step of variably applying said dopant solution comprises depositing said dopant solution with an ink jet array.

9. (withdrawn) The method of claim 8, further comprising:

selecting a second desired property that should vary across said substrate; and

variably applying at least a second dopant solution in order to achieve said second property which varies across said substrate.

10. (withdrawn) The method of claim 9, wherein said step of applying said at least one dopant solution comprises depositing said dopant solution with an ink jet array.

11. (withdrawn) The method of claim 1, wherein said step of variably applying said dopant solution further comprises controlling a density of said dopant solution.

12. (withdrawn) The method of claim 1, wherein said step of variably applying said dopant solution further comprises varying a concentration of said dopant in said dopant solution.

13. (withdrawn) The method of claim 1, wherein said step of variably applying said dopant solution further comprises varying a viscosity of said dopant solution.

14. (withdrawn) The method of claim 1, wherein said step of variably applying said dopant solution further comprises varying an amount of time between said applying of said dopant solution and curing said dopant solution.

15. (original) A dopant solution application apparatus, comprising:

a frame; and

a plurality of fluid ejection devices disposed on said frame wherein said fluid ejection devices are configured to variably eject a dopant solution onto a substrate.

16. (original) The dopant solution application apparatus of claim 15, further comprising a substrate advancement mechanism coupled to said frame, said substrate advancement mechanism being configured to advance said substrate in an advancement direction.

17. (original) The dopant solution application apparatus of claim 16, wherein said fluid ejection devices comprise an array configured to variably eject said

at least one dopant solution, wherein each fluid ejection device is configured to variably eject said at least one dopant solution.

18. (original) The dopant solution application apparatus of claim 15, wherein said fluid ejection devices comprise inkjets.

19. (original) The dopant solution application apparatus of claim 18, wherein said inkjets are arranged in an array that spans a width of said substrate..

20. (original) The dopant solution application apparatus of claim 15, further comprising a second plurality of fluid ejection devices disposed on said frame wherein said second plurality of fluid ejection devices is configured to variably apply a second doping solution.

21. (original) The dopant solution application apparatus of claim 20, wherein said pluralities of fluid ejection devices each comprise an array of fluid ejection devices configured to variably eject one of said dopant solutions.

22. (original) The dopant solution application apparatus of claim 21, wherein said fluid ejection devices comprise inkjets.

23. (original) The dopant solution application apparatus of claim 22, wherein said arrays comprise substrate-wide arrays.

24. (currently amended) The dopant solution application apparatus of claim 15, further comprising;

~~A substrate processing system, comprising:~~

~~a frame;~~

a ceramic formation mechanism associated with said frame;

~~a plurality of fluid ejection devices with said frame, said devices being configured to variably eject at least one dopant solution~~.

25. (currently amended) The dopant solution application apparatus ~~The substrate processing system~~ of claim 24, wherein said ceramic formation mechanism comprises a tape casting mechanism.

26. (currently amended) The dopant solution application apparatus ~~The substrate processing system~~ of claim 24, wherein said ceramic formation mechanism comprises a screen printing mechanism.

27. (currently amended) The dopant solution application apparatus ~~The substrate processing system~~ of claim 24, wherein said ceramic formation mechanism comprises a doctor blade mechanism.

28. (currently amended) The dopant solution application apparatus ~~The substrate processing system~~ of claim 24, further comprising a substrate advancement mechanism coupled to said frame and configured to advance said substrate in an advancement direction.

29. (currently amended) The dopant solution application apparatus ~~The substrate processing system~~ of claim 28, wherein said fluid ejection devices comprise:

an array configured to variably eject said at least one dopant solution; and

wherein each fluid ejection device is further configured to variably eject said at least one dopant solution with respect to said advancement direction.

30. (currently amended) The dopant solution application apparatus ~~The substrate processing system~~ of claim 29, wherein said fluid ejection devices comprise inkjets.

31. (currently amended) The dopant solution application apparatus ~~The substrate processing system~~ of claim 30, wherein said array comprises a substrate-wide array of inkjets.

32. (currently amended) The dopant solution application apparatus ~~The substrate processing system~~ of claim 33, further comprising a second plurality of fluid ejection devices disposed along said frame wherein said second plurality of fluid ejection devices is configured to variably apply a second doping solution.

33. (currently amended) The dopant solution application apparatus ~~The substrate processing system~~ m of claim 32, wherein said fluid ejection devices comprise inkjets.

34. (currently amended) The dopant solution application apparatus ~~The substrate processing system~~ of claim 33, wherein said arrays comprise substrate-wide arrays.

35. (withdrawn) A gradient-doped substrate, comprising:

a substrate having a first axis;

at least one dopant of said substrate, wherein a concentration of said dopant varies along said first axis of said substrate.

36. (withdrawn) The substrate of claim 35, wherein said substrate comprises a ceramic.

37. (withdrawn) The substrate of claim 35, wherein said substrate comprises a ceramic-based material.

38. (withdrawn) The substrate of claim 35, wherein said concentration of said dopant also varies in a direction at an angle to said first axis.

39. (withdrawn) The substrate of claim 35, further comprising a second dopant of said substrate, wherein a concentration of said second dopant varies along a second axis of said substrate.

40. (withdrawn) The substrate of claim 39, wherein said concentration of said second dopant further varies in a direction at an angle to said second axis.

41. (withdrawn) The substrate of claim 39, wherein said concentration of said second dopant also varies in a direction at an angle to said second axis.

42. (withdrawn) A fuel cell, comprising:

a gradient-doped substrate, including

a substrate having a first axis;

at least one dopant of said substrate, wherein a concentration of said dopant varies along said first axis; and

an anode, a cathode, and an electrolyte coupled to said substrate.

43. (withdrawn) The fuel cell of claim 42, wherein said substrate comprises a ceramic.

44. (withdrawn) The fuel cell of claim 42, wherein said substrate comprises a ceramic-based material.

45. (withdrawn) The fuel cell of claim 42, wherein said concentration of said dopant also varies in a direction at an angle to said first axis.

46. (withdrawn) The fuel cell of claim 42, further comprising a second dopant of said substrate, wherein a concentration of said second dopant varies along a second axis of said substrate.

47. (withdrawn) The fuel cell of claim 46, wherein said concentration of said second dopant also varies in a direction at an angle to said second axis.

48. (withdrawn) An electronic device comprising:

an electrochemical cell providing power to an electrical power consuming apparatus;

a fuel source for said electrochemical cell; and

a fuel flow path fluidly coupling said electrochemical cell and said fuel source;

wherein said electrochemical cell includes a housing and a fuel cell including an anode, a cathode, and an electrolyte disposed on a gradient-doped substrate, said fuel cell being located within said housing;

wherein said gradient-doped substrate has a first axis; and

comprises at least one dopant, where a concentration of said dopant varies along said first axis.

49. (withdrawn) The electronic device of claim 48, wherein said substrate comprises a ceramic.

50. (withdrawn) The electronic device of claim 48, wherein said substrate comprises a ceramic-based material.

51. (withdrawn) The electronic device of claim 48, wherein said concentration of said dopant further varies in a direction at an angle to said first axis.

52. (withdrawn) The electronic device of claim 48, further comprising a second dopant of said substrate, wherein a concentration of said second dopant varies along a second axis of said substrate.

53. (withdrawn) The electronic device of claim 52, wherein said concentration of said second dopant further varies in a direction at an angle to said second axis.

54. (withdrawn) A system for applying a dopant to a substrate, comprising:

means for applying at least one dopant to a substrate; and

means for varying a concentration of said dopant applied across said substrate.

55. (withdrawn) The system of claim 54, wherein said means for apply said dopant comprise inkjets.

56. (withdrawn) The system of claim 55, wherein said inkjets are arranged in an array spanning a width of said substrate.

57. (withdrawn) The system of claim 54, wherein said means for applying comprise means for applying a plurality of different dopants to said substrate with concentrations that vary across said substrate.

58. (withdrawn) The system of claim 54, further comprising means for advancing said substrate through said means for applying at least one dopant.

59. (new) The dopant solution application apparatus of claim 15, wherein said substrate has a first axis; and

wherein said plurality of fluid ejection devices are configured to vary a concentration of said dopant along said first axis of said substrate.

60. (new) The dopant solution application apparatus of claim 59, wherein said plurality of fluid ejection devices are further configured to vary said concentration of said dopant also varies in a direction at an angle to said first axis.

61. (new) The dopant solution application apparatus of claim 59, wherein said plurality of fluid ejection devices are further configured to apply a second dopant to said substrate, wherein a concentration of said second dopant varies along a second axis of said substrate.